RAUDTEEALASED RAKENDUSED. RÖÖBASTEE. TALDADEGA BETOONLIIPRID JA PÖÖRMEPRUSSID

Railway applications - Track - Concrete sleepers and bearers with under sleeper pads

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NATIONAL FOREWORD

See Eesti standard EVS-EN 16730:2016 sisaldab Euroopa standardi EN 16730:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 16730:2016 consists of the English text of the European standard EN 16730:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Railway applications - Track - Concrete sleepers and bearers with under sleeper pads

Applications ferroviaires - Voie - Traverses et supports en béton avec semelles sous traverse

Bahnanwendungen - Oberbau - Gleis- und Weichenschwellen aus Beton mit Schwellensohlen

This European Standard was approved by CEN on 12 March 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 16730:2016) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

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Introduction

This European Standard relates to the EN 13230 series when the sleepers or bearers are manufactured with Under Sleeper Pad (USP). The USP is an elastic layer fixed to the bottom surface of the sleepers or bearers. This standard applies to the system constituted of the concrete sleepers or bearers and the Under Sleeper Pad.

1 Scope

This European Standard is applicable to concrete sleepers or bearers with Under Sleeper Pads (USP) physically bonded to concrete used in ballast track and define the test procedures and their evaluation criteria. This standard provides particular information in the following areas:

— test methods, test arrangements and evaluation criteria of Under Sleeper Pads;

— test methods, test arrangements and evaluation criteria of concrete sleepers and bearers with Under Sleeper Pads;

— data supplied by the purchaser and by the supplier;

— definition of general process of design approval tests;

— definition of routine tests.

This standard defines the specific test procedures for design approval tests, routine tests and tests concerning the determination of relevant properties of Under Sleeper Pad with or without concrete sleepers and bearers:

— fatigue tests;

— tests of capability for stacked stocking of concrete sleepers or bearers fitted with USP;

— pull-out test;

— severe environmental condition test.

This standard also sets out procedures for testing fitness for purpose and provides information on quality monitoring as part of quality assurance procedures. This standard does not, however, contain requirements pertaining to the properties of Under Sleeper Pads. It is the responsibility of the purchaser to define these requirements

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 206, *Concrete - Specification, performance, production and conformity*

EN 1542, *Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off*

EN 10027 (all parts), *Designation systems for steels*

EN 13230-1:2016, *Railway applications - Track - Concrete sleepers and bearers - Part 1: General requirements*

EN 13230-2:2016, *Railway applications - Track - Concrete sleepers and bearers - Part 2: Prestressed monoblock sleepers*

EN 13230-3:2016, *Railway applications - Track - Concrete sleepers and bearers - Part 3: Twin-block reinforced sleepers*

EN 13230-4:2016, *Railway applications - Track - Concrete sleepers and bearers - Part 4: Prestressed bearers for switches and crossings*

EN 13230-5, *Railway applications - Track - Concrete sleepers and bearers - Part 5: Special elements*

EN 13450, *Aggregates for railway ballast*

EN ISO 527 (all parts), *Plastics — Determination of tensile properties (ISO 527, all parts)*

EN ISO 7500-1, *Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Calibration and verification of the force-measuring system (ISO 7500-1)*

EN ISO 9513:2012, *Metallic materials - Calibration of extensometer systems used in uniaxial testing (ISO 9513:2012)*

EN ISO 22768 (all parts), *Permissible machining variations in dimensions without tolerance indication (ISO 2768, all parts)*

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
track category TC1
track using concrete sleepers or bearers with under sleeper pads designed for urban light rail and some industrial track with a typical axle load between 100 kN and 130 kN, a typical maximum speed of 100 km/h, a typical rail section of 49E1 (as defined in EN 13674-1) and a typical sleeper or support spacing of 650 mm (maximum 750 mm)

3.2
track category TC2
track using concrete sleepers or bearers with under sleeper pads designed for urban light rail and some industrial track with a typical axle load of 160 kN, a typical maximum speed of 140 km/h, a typical rail section of 54E1 (as defined in EN 13674-1) and a typical sleeper or support spacing of 650 mm

3.3
track category TC3
track using concrete sleepers or bearers with under sleeper pads designed for either:

— conventional main line railways with a typical axle load of 225 kN, a typical maximum speed of 200 km/h, a typical rail section of 60E1 (as defined in EN 13674-1) and a typical sleeper or support spacing of 600 mm; or

— track using concrete sleepers or bearers with under sleeper pads designed for lines with large radius curves, often used for high speed trains and having a typical axle load of 200 kN, a typical maximum speed of 320 km/h, a typical rail section of 60E1 (as defined in EN 13674-1), a typical sleeper or support spacing of 600 mm